

Unit IV — Plant Growth Instructor Guide

The instructor should assign the performance-based assessment activity at the beginning of the unit. Students will work toward completing the activity as they progress through the unit lessons. The assessment activity will be due at the completion of the unit.

1. Students will work individually to conduct a seed germination experiment comparing the differences in growth patterns based on the variable to which the plant seeds are exposed.
2. Give each student specifications (a variable) for planting or caring for his or her seeds. Variables may include, but are not limited to, the following:
 - Light (different light strengths or light colors)
 - Media type
 - Moisture levels
 - Fertilizer (amount or type)
 - pH
 - Seed depth
3. Before the students plant their seeds, have them hypothesize what will happen to their seeds based on their given variable. For example, they should address whether the plants will grow well or poorly and if the plants will have root system problems.
4. Provide each student approximately 10 seeds (e.g., corn or beans). Have the students plant the seeds according to specifications and care for them.
5. Have students develop a chart to record their plants' activity.
 - a. The chart will include a space at the top for writing the hypothesis before the experiment begins.
 - b. Students will examine their plants and record activity (e.g., the height and appearance of the plant) every day that they are in the classroom.
6. At the end of the experiment, each student will write a short summary that presents his or her findings and evaluates how the hypothesis held up. The summary should at least cover the following topics:
 - General performance of the plants
 - What the variable was
 - What the initial hypothesis was and how it changed (if applicable)
 - Summary of the care given to the plants
7. The final assessment will be based on the overall content and presentation of the chart and summary. Spelling, grammar, punctuation, and capitalization will also be factors in the assessment.
8. **ADDITIONAL ACTIVITY:** For further review, an additional unit-level activity, "Plant Portfolio," is included on p. 279 of the *Greenhouse Operation and Management* Instructor Guide. For this activity, students create a portfolio of the plants they grew at the beginning of unit I. They are asked to provide basic information and specific greenhouse needs for the plants in their portfolio. See the activity for additional directions and details. Answers will vary.

